C l a i m s

1. Mixer circuit (31) comprising:
   - a down-conversion mixing component (33) arranged for down-converting an input radio frequency signal (Irf+,Irf-); and
   - an active mixer load circuit (34) connected to output terminals of said down-conversion mixing component (33), wherein said active mixer load circuit (34) includes an active mixer load (51,T1,T2) and modulating means (S1-S4) arranged for modulating a flicker noise produced by said active mixer load (51,T1,T2) away from the signal band of a signal (Ibb+,Ibb-) output by said down-conversion mixing component (33).

2. Mixer circuit (31) according to claim 1, wherein said modulating means include a plurality of switching elements (S1-S4).

3. Mixer circuit (31) according to claim 2, wherein said active mixer load includes a first transistor (T1), a second transistor (T2) and an operational amplifier (51), wherein a first output terminal of said down-conversion mixing component (33) is connected to a first input of said operational amplifier (51), wherein a second output terminal of said down-conversion mixing component (33) is connected to a second input of said operational amplifier (51), wherein a reference common mode voltage (VCMREF) is

applied to a reference common mode voltage input of said operational amplifier (51), wherein an output of said operational amplifier (51) is connected in parallel to a respective gate of said first transistor (T1) and said second transistor (T2), and wherein said switching elements (S1-S4) are arranged for connecting alternately on the one hand said first output terminal of said down-conversion mixing component (33) via said first transistor (T1) and said second output terminal of said down-conversion mixing component (33) via said second transistor (T2) to ground (Gnd), and on the other hand said first output terminal of said down-conversion mixing component (33) via said second transistor (T2) and said second output terminal of said down-conversion mixing component (33) via said first transistor (T1) to ground (Gnd).

4. Mixer circuit (31) according to one of claims 1 to 3, wherein said down-conversion mixing component (33) is adapted to down-convert radio frequency current mode signals.

5. Mixer circuit according to one of claims 1 to 3, wherein said down-conversion mixing component is adapted to down-convert radio frequency voltage mode signals.

6. Receiver circuit (10) for receiving radio frequency signals and for providing corresponding down-converted signals, which receiver circuit (10) comprises a mixer circuit (31) according to one of the preceding claims.

7. Receiver circuit (10) according to claim 6, wherein at least said mixing circuit (31) and at least one component (15) of said receiver circuit (10) arranged for processing digital baseband signals are integrated in a single chip (16).

8. Chip comprising at least a mixer circuit (31) according to one of claims 1 to 5.

9. Chip according to claim 8, wherein said mixer circuit (31) is implemented on said chip with a deep sub-micron semiconductor technology.

10. Apparatus comprising a mixer circuit (31) according to one of claims 1 to 5.

11. Method for use in a mixer circuit (31) comprising a down-conversion mixing component (33) and an active mixer load circuit (34), said method comprising:
- down-converting a received radio frequency signal (Irf+,Irf-) by means of said down-conversion mixing component (33);
- controlling an output voltage of said down-conversion mixing component (33) by means of an active mixer load (51,T1,T2) of said active mixer load circuit (34); and
- modulating a flicker noise produced by said active mixer load (51,T1,T2) away from the signal band of said down-converted radio frequency signal (Ibb+,Ibb-).